

In the Claims:

Please amend claims 1, 10, 12,13, 14, 16 and cancel claims 4 & 5, without prejudice. The status of all pending claims is as follows:

1. (Currently amended) An apparatus for reading recorded data, from a recording medium having an address part for recording an address and a data part for recording data in that the data part has a higher recording density than the address part, said apparatus comprising:

a first clock signal generating part generating a first clock signal;

a second clock signal generating part generating a second clock signal ~~different from~~ faster than the first clock signal;

a third clock signal generating part generating a third clock signal;

a fourth clock signal generating part generating a fourth clock signal faster than the third clock signal;

a sampling part sampling a read signal from recorded data of a recording medium by synchronizing with the first clock signal when the recorded data is the address recorded in the address part and by synchronizing with the third clock signal when the recorded data is the data in the data part;

a first storing part consecutively storing a sample value obtained by said sampling part; and

a data detecting part retrieving the sample value from said first storing part by synchronizing the second clock signal when the sample value is sampled from the address

recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part, and detecting data by processing the sample value in accordance with a predetermined algorithm, wherein the second clock signal is faster than the first clock signal,

so that the recorded data is read based on the data detected by said data detecting part.

2. (Previously presented) The apparatus as claimed in claim 1, wherein said data detecting part comprises a recursive process conducting part conducting a recursive process for the sample data retrieved from the first storing part in accordance with the predetermined algorithm so that maximum likelihood data is detected.

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Previously presented) The apparatus as claimed in claim 2, wherein said recursive process conduction part conducts said recursive process based on an iterative number, which number is defined so that a required time required for completing

said recursive process does not exceed a storing time required for storing the sample value by said first storing part.

7. (Original) The apparatus as claimed in claim 2, wherein said recursive process conduction part conducts said recursive process based on the iterative number, which number in a case in which the recorded data is the address recorded in the address part is different from that in a case in which the recorded data is the data recorded in the data part.

8. (Previously presented) The apparatus as claimed in claim 2, wherein said recursive process conduction part conducts said recursive process based on an iterative number, which number is defined so that a required time required for completing said recursive process conducted does not exceed a scanning time required for scanning a gap provided between an address part recording an address of data and a data part recording the data.

9. (Previously presented) The apparatus as claimed in claim 1, further comprising:

a second storing part consecutively storing a sample value obtained by said sampling part;

a first switching part switching to one of said first storing part and said second storing part;

a second switching part switching to another one of said first storing part and said second storing part, which is not switched to by said first switching part;

whereby one of said first storing part and said second storing part, which is switched to by said first switching part, stores the sample value, while said data detecting part retrieves the sample value from another one of said first storing part and said second storing part, which is switched to by said second switching part.

10. (Currently Amended) The apparatus as claimed in claim 9, wherein one of said first storing part and said second storing part, which is switched to by said first switching part, stores the sample value ~~of an address recorded in an address part,~~ while said data detecting part retrieves the sample value of data recorded in a data part from another one of said first storing part and said second storing part, which is switched to by said second switching part.

11. (Original) The apparatus as claimed in claim 9, wherein said data detecting part comprises a recursive process conducting part conducting a recursive process for the sample value, which is retrieved from one of said first storing part and said second storing part, which is switched by said second switching part, in accordance with the

predetermined algorithm, and detecting the maximum likelihood data, by synchronizing with said second clock signal.

12. (Currently amended) An apparatus for reading recorded data from a recording medium having an address part for recording an address and a data part for recording data in that the data part has a higher recording density than the address part, said apparatus comprising:

a first clock signal generating part generating a first clock signal;

a second clock signal generating part generating a second clock signal ~~different from~~ faster than the first clock signal;

a third clock signal generating part generating a third clock signal;

a fourth clock signal generating part generating a fourth clock signal faster than the third clock signal;

a sampling part sampling a read signal from recorded data of a recording medium by synchronizing with the first clock signal when the recorded data is the address recorded in the address part and by synchronizing with the third clock signal when the recorded data is the data recorded in the data part;

a first storing part consecutively storing a sample value obtained by said sampling part;

a data detecting part retrieving the sample value from said first storing part

by synchronizing the second clock signal when the sample value is sampled from the address recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part, and detecting data by processing the sample value in accordance with a predetermined algorithm,

so that the recorded data is read based on the data detected by said data detecting part;

a second storing part consecutively storing a sample value obtained by said sampling part;

a first switching part switching to one of said first storing part and said second storing part; and

a second switching part switching to another one of said first storing part and said second storing part, which is not switched to by said first switching part;

whereby one of said first storing part and said second storing part, which is switched to by said first switching part, stores the sample value, while said data detecting part retrieves the sample value from another one of said first storing part and said second storing part, which is switched to by said second switching part;

wherein said data detecting part comprises a recursive process conducting part conducting a recursive process for the sample value, which is retrieved from one of said first storing part and said second storing part, which is switched to by said second switching part, in accordance with the predetermined algorithm, and detecting the maximum likelihood data, by synchronizing with said second clock signal when the sample value is sampled from

the address recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part;

wherein ~~said second clock signal is faster than~~ said first clock signal and said third clock signal ~~which~~ synchronizes with a timing of storing the sample value to either said first storing part or said second storing part, whichever one has been switched to by said first switching part.

13. (Currently amended) An apparatus for reading recorded data, from a recording medium having an address part for recording an address and a data part for recording data in that the data part has a higher recording density than the address part, said apparatus comprising:

a first clock signal generating part generating a first clock signal;

a second clock signal generating part generating a second clock signal ~~different from~~ faster than the first clock signal;

a third clock signal generating part generating a third clock signal;

a fourth clock signal generating part generating a fourth clock signal faster than the third clock signal;

a sampling part sampling a read signal from recorded data of a recording medium by synchronizing with the first clock signal when the recorded data is the address recorded in the address part and by synchronizing with the third clock signal when the recorded data is the data recorded in the data part;

a first storing part consecutively storing a sample value obtained by said sampling part;

a data detecting part retrieving the sample value from said first storing part by synchronizing the second clock signal when the sample value is sampled from the address recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part, and detecting data by processing the sample value in accordance with a predetermined algorithm, so that the recorded data is read based on the data detected by said data detecting part;

a second storing part consecutively storing a sample value obtained by said sampling part;

a first switching part switching to one of said first storing part and said second storing part; and

a second switching part switching to another one of said first storing part and said second storing part, which is not switched to by said first switching part;

whereby one of said first storing part and said second storing part, which is switched to by said first switching part, stores the sample value, while said data detecting part retrieves the sample value from another one of said first storing part and said second storing part, which is switched to by said second switching part;

wherein said data detecting part comprises a recursive process conducting part conducting a recursive process for the sample value, which is retrieved from one of said first storing part and said second storing part, which is switched to by said second switching part,



in accordance with the predetermined algorithm, and detecting the maximum likelihood data, by synchronizing with said second clock signal when the sample value is sampled from the address recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part;

wherein said recursive process conduction part conducts said recursive process based on an iterative number, which number is defined so that a required time required for completing said recursive process does not exceed a storing time required for storing the sample value by one of said first storing part and said second part, which is switched by said first switching part.

14. (Currently amended) An apparatus for reading recorded data from a recording medium having an address part for recording an address and a data part for recording data in that the data part has a higher recording density than the address part, said apparatus comprising:

a first clock signal generating part generating a first clock signal;

a second clock signal generating part generating a second clock signal ~~different from~~ faster than the first clock signal;

a third clock signal generating part generating a third clock signal;

a fourth clock signal generating part generating a fourth clock signal faster than the third clock signal;

a sampling part sampling a read signal from recorded data of a recording

medium by synchronizing with the first clock signal when the recorded data is the address recorded in the address part and by synchronizing with the third clock signal when the recorded data is the data recorded in the data part;

a first storing part consecutively storing a sample value obtained by said sampling part;

a data detecting part retrieving the sample value from said first storing part by synchronizing the second clock signal when the sample value is sampled from the address recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part, and detecting data by processing the sample value in accordance with a predetermined algorithm,

so that the recorded data is read based on the data detected by said data detecting part,

a second storing part consecutively storing a sample value obtained by said sampling part;

a first switching part switching to one of said first storing part and said second storing part; and

a second switching part switching to another one of said first storing part and said second storing part, which is not switched to by said first switching part;

whereby one of said first storing part and said second storing part, which is switched to by said first switching part, stores the sample value, while said data detecting part

retrieves the sample value from another one of said first storing part and said second storing part, which is switched to by said second switching part;

wherein said data detecting part comprises a recursive process conducting part conducting a recursive process for the sample value, which is retrieved from one of said first storing part and said second storing part, which is switched to by said second switching part, in accordance with the predetermined algorithm, and detecting the maximum likelihood data, by synchronizing with said second clock signal when the sample value is sampled from the address recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part;

wherein said recursive process conduction part conducts said recursive process based on an iterative number, which number is defined so that a required time, which is required for retrieving the sample value of the data part from one of said first storing part and said second storing part, which one is switched to by said second switching part, and completing said recursive process, does not exceed a storing time, which is required for storing the sample value of the address part to another one of said first storing part and said second storing part, which one is switched to by said first switching part.

15. (Previously presented) The apparatus as claimed in claim 14, wherein said iterative number is set when one of said first storing part and said second storing part, which one is switched to by said first switching part, stores the sample value of the address part.

16. (Currently amended) An apparatus for reading recorded data from a recording medium having an address part for recording an address and a data part for reencoding data in that the data part has a higher recording density than the address part, said apparatus comprising:

a first clock signal generating part generating a first clock signal;

a second clock signal generating part generating a second clock signal ~~different from~~ faster than the first clock signal;

a third clock signal generating part generating a third clock signal;

a fourth clock signal generating part generating a fourth clock signal faster than the third clock signal;

a sampling part sampling a read signal from recorded data of a recording medium by synchronizing with the first clock signal when the recorded data is the address recorded in the address part and by synchronizing with the third clock signal when the recorded data is the data recorded in the data part;

a first storing part consecutively storing a sample value obtained by said sampling part;

a data detecting part retrieving the sample value from said first storing part by synchronizing the second clock signal when the sample value is sampled from the address recorded in the address part and by synchronizing the fourth clock signal when the sample

value is sampled from the data recorded in the data part, and detecting data by processing the sample value in accordance with a predetermined algorithm,

so that the recorded data is read based on the data detected by said data detecting part,

a second storing part consecutively storing a sample value obtained by said sampling part;

a first switching part switching to one of said first storing part and said second storing part; and

a second switching part switching to another one of said first storing part and said second storing part, which is not switched to by said first switching part;

whereby one of said first storing part and said second storing part, which is switched to by said first switching part, stores the sample value, while said data detecting part retrieves the sample value from another one of said first storing part and said second storing part, which is switched to by said second switching part;

wherein said data detecting part comprises a recursive process conducting part conducting a recursive process for the sample value, which is retrieved from one of said first storing part and said second storing part, which is switched to by said second switching part, in accordance with the predetermined algorithm, and detecting the maximum likelihood data, by synchronizing with said second clock signal when the sample value is sampled from the address recorded in the address part and by synchronizing the fourth clock signal when the sample value is sampled from the data recorded in the data part;

wherein said recursive process conduction part conducts said recursive process based on an iterative number, which number is defined so that a required time, which is required for retrieving the sample value of the address part from one of said first storing part and said second storing part, which one is switched to by said second switching part, and completing said recursive process, does not exceed a storing time, which is required for storing the sample value of the data part to another one of said first storing part and said second storing part, which one is switched by said first switching part.

17. (Previously presented) The apparatus as claimed in claim 16, wherein said iterative number is set when one of said first storing part and said second storing part, which one is switched to by said first switching part, stores the sample value of the data part.